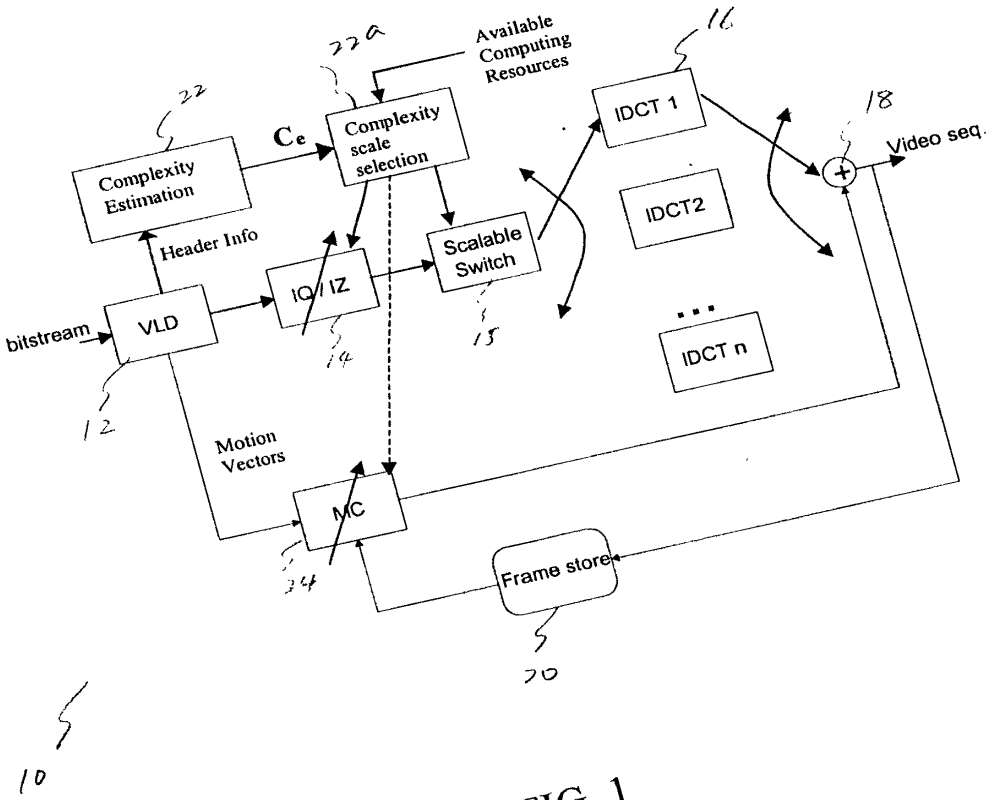
Available Computing Resources
22a
16
22
Ce
Complexity Estimation
Complexity scale selection
IDCT 1
18
Video seq.
IDCT2
Header Info
Scalable Switch
IQ / IZ
bitstream
VLD
IDCT n
12
14
15
Motion Vectors
MC
Frame store
24
20
10

FIG. 1

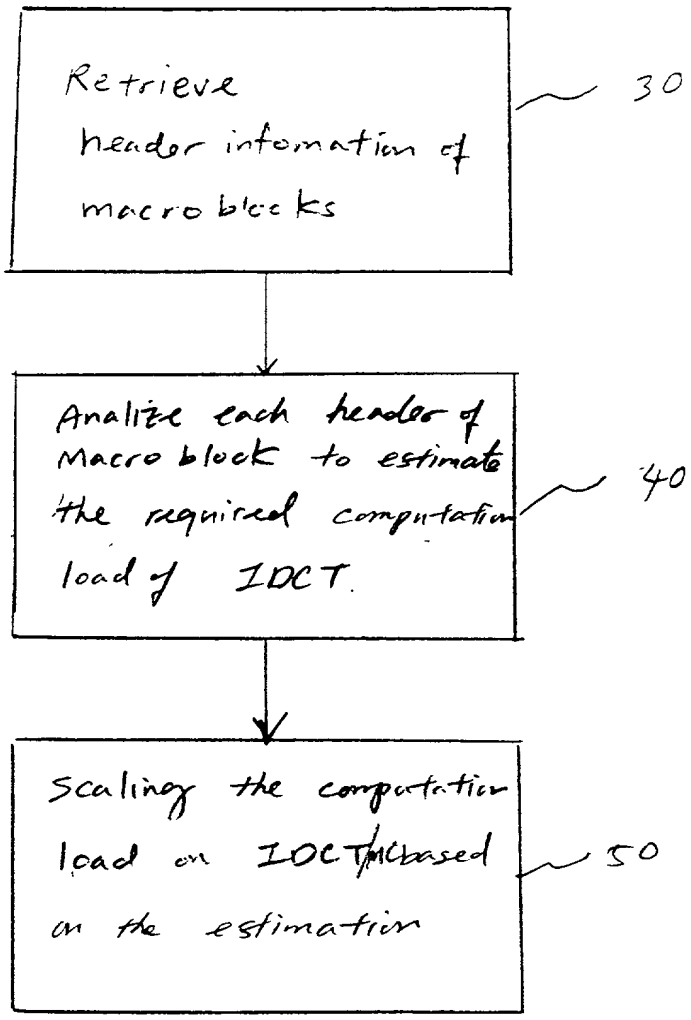
Retrieve header information of macro blocks
30
Analize each header of Macro block to estimate the required computation load of IDCT.
40
Scaling the computation load on IDCT based on the estimation
50

FIG. 2

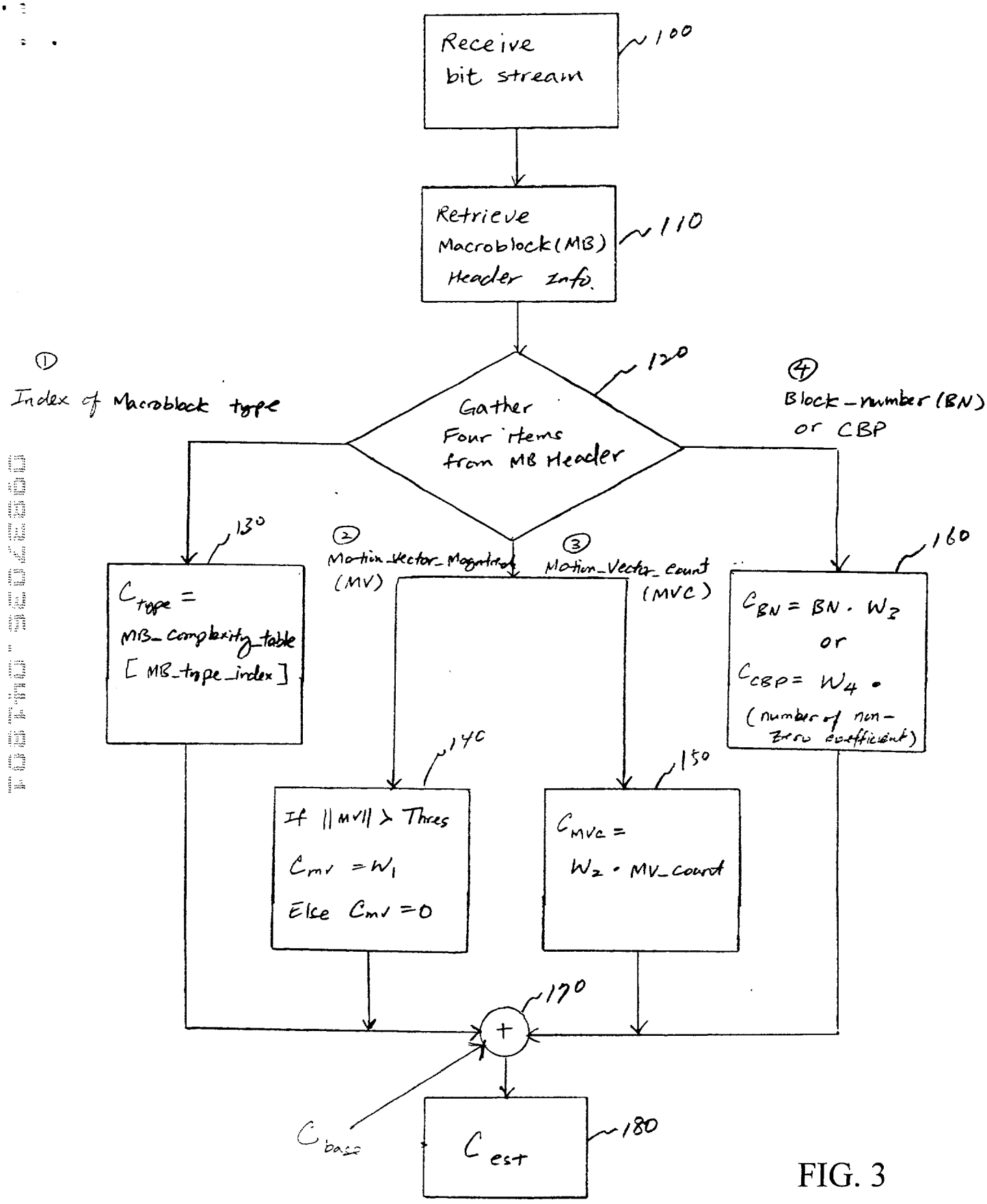
Receive bit stream
100
Retrieve Macroblock(MB) Header info.
110
Gather Four items from MB Header
120
① Index of Macroblock type
② Motion_Vector_Magnitude (MV)
③ Motion_Vector_count (MVC)
④ Block_number (BN) or CBP
$C_{type}$ = MB_complexity_table [MB_type_index]
130
If ||MV|| > Thres
$C_{mv} = W_1$
Else $C_{mv} = 0$
140
$C_{MVC} = W_2 \cdot MV_count$
150
$C_{BN} = BN \cdot W_3$ or $C_{CBP} = W_4 \cdot$ (number of non-zero coefficient)
160
170
$C_{base}$
$C_{est}$
180

FIG. 3

# FIG. 4(a)

| macroblock_ type | macroblock_ quant | macroblock motion_ forward | macroblock motion_ backward | macroblock_ pattern | macroblock_ intra | VLC |
|---|---|---|---|---|---|---|
| Intra | | | | | 1 | 1 |
| Intra, macroblock_quant | | | | | 1 | 01 |

# FIG. 4(b)

| macroblock_ type | macroblock quant | macroblock_ motion_ forward | macroblock motion backward | macroblock_ pattern | macroblock_ intra | VLC |
|---|---|---|---|---|---|---|
| MC_Coded | | 1 | | 1 | | 1 |
| No MC, Coded | | | | 1 | | 01 |
| MC Not Coded | | 1 | | | | 001 |
| Intra | | | | | 1 | 00011 |
| MC, Coded macroblock_quant | 1 | 1 | | 1 | | 00010 |
| No MC, Coded, macroblock_quant | 1 | | | 1 | | 00001 |
| Intra, macroblock_quant | 1 | | | | 1 | 000001 |

# FIG. 4(c)

| macroblock_ type | macroblock_ quant | macroblock_ motion forward | macroblock_ motion_ backward | macroblock_ pattern | macroblock_ intra | VLC |
|---|---|---|---|---|---|---|
| MC Interpolated, Not Coded | | 1 | 1 | | | 10 |
| MC Interpolated, Coded | | 1 | 1 | 1 | | 11 |
| MC Backward, Not Coded | | | 1 | | | 010 |
| MC Backward, Coded | | | 1 | 1 | | 011 |
| MC Forward, Not Coded | | 1 | | | | 0010 |
| MC Forward, Coded | | 1 | | 1 | | 0011 |
| Intra | | | | | 1 | 0001 1 |
| MC Interpolated, Coded, macroblock quant | 1 | 1 | 1 | 1 | | 0001 0 |
| MC Forward, Coded, macroblock quant | 1 | 1 | | 1 | | 0000 11 |
| MC Backward, Coded macroblock_quant | 1 | | 1 | 1 | | 0000 10 |
| Intra macroblock_quant | 1 | | | | 1 | 0000 01 |

Macro Block ( MB ) complexity Table

| MB - Type | MB-type - Index | weight code |
|---|---|---|
| Intra | 00 | 0 |
| Not MC, coded | 01 | W |
| MC, Not coded | 10 | 2W |
| MC, coded | 11 | 3W |

FIG. 5

REPLACEMENT SHEET

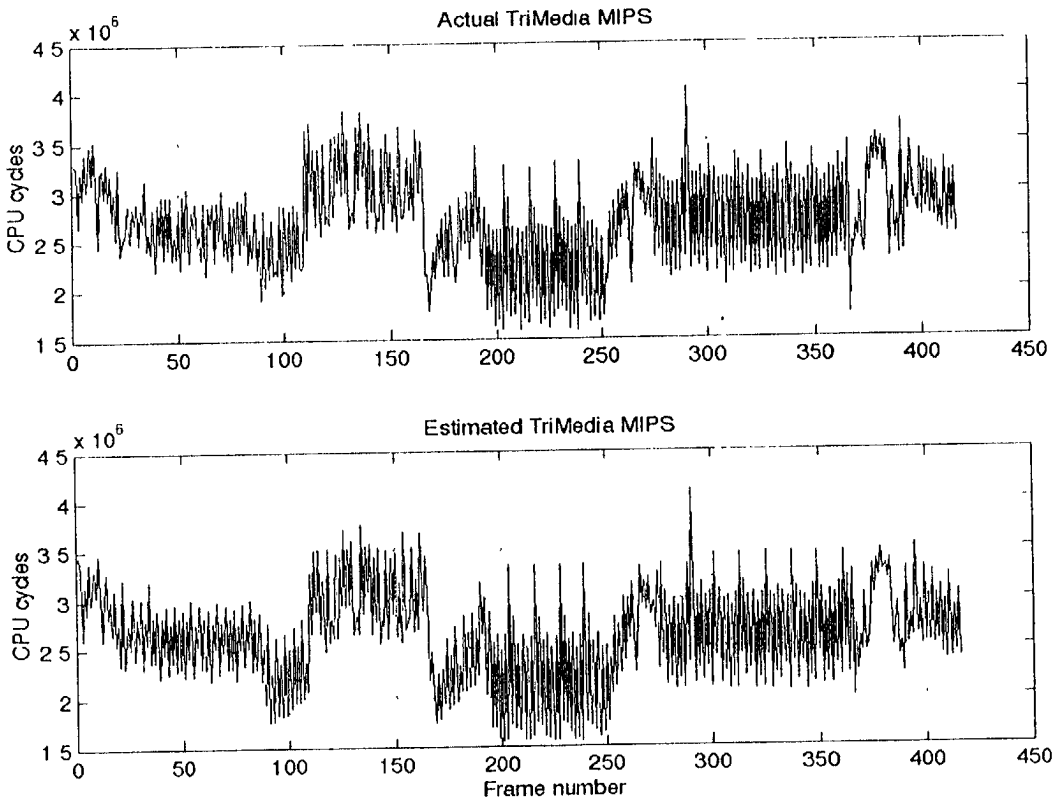


FIG. 6(a)

Document Received

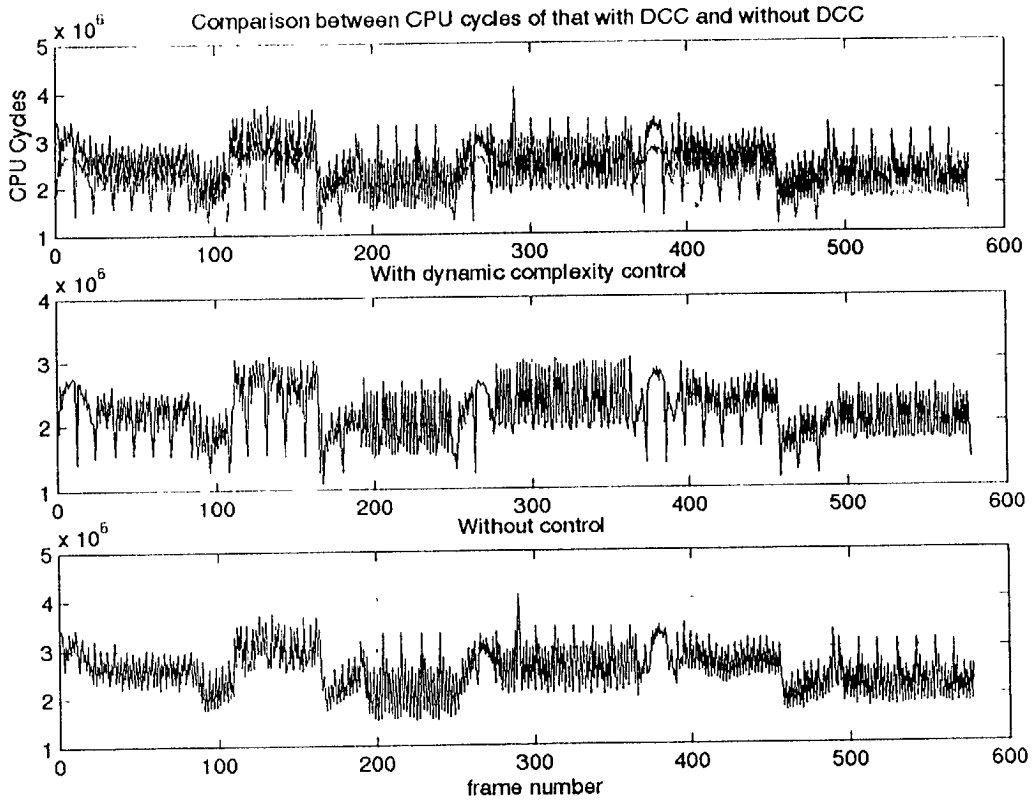


FIG 6(b)